Amendments to the Claims

This listing of claims will replace all prior versions, and listings of claims in the instant application.

1 (original). A transgenic plant cell transformed with a nucleic acid encoding a polypeptide, wherein the polypeptide is defined in SEQ ID NO:13.

2 (original). The transgenic plant cell of claim 1, wherein the nucleic acid comprises a polynucleotide as defined in SEQ ID NO:8.

3 (currently amended). A transgenic plant cell transformed with a nucleic acid encoding a full-length polypeptide having PP2A-4 activity, wherein expression of the polypeptide in the ~~plant~~ cell results in the ~~plant cell's~~ cell having increased tolerance to ~~an environmental stress selected from one or more of the group consisting of~~ drought ~~and~~ or temperature less than or equal to 0°C, as compared to a wild type variety of the plant cell; wherein the nucleic acid is selected from the group consisting of:

a) a nucleic acid that hybridizes under stringent conditions to ~~at least one~~ a polynucleotide having a sequence as defined in ~~from the group consisting of a sequence of~~ SEQ ID NO:8; and

b) a nucleic acid that hybridizes under stringent conditions to the full-length complement of the polynucleotide having the sequence ~~of~~ as defined in SEQ ID NO:8;

and wherein the stringent conditions comprise the steps of hybridization in a 6X sodium chloride/sodium citrate (SSC) solution at 65°C and at least one wash in a 0.2X SSC, 0.1% SDS solution at 50°C.

4 (currently amended). A transgenic plant cell transformed with a nucleic acid encoding a full-length polypeptide having PP2A-4 activity and at least 90% sequence identity with a polypeptide having a sequence as defined in SEQ ID NO:13, wherein expression of the polypeptide in the ~~plant~~ cell results in the ~~plant cell's~~ cell having increased tolerance to ~~an environmental stress selected from one or more of the group consisting of~~ drought ~~and~~

or temperature less than or equal to 0°C, as compared to a wild type variety of the plant cell.

5 (currently amended). The transgenic plant cell of any of claims 1, 2, 3, or 4, wherein the ~~plant~~ cell is derived from a monocot.

6 (currently amended). The transgenic plant cell of any of claims 1, 2, 3, or 4, wherein the ~~plant~~ cell is derived from a dicot.

7 (currently amended). The transgenic plant cell of any of claims 1, 2, 3, or 4, wherein the cell is derived from a plant ~~is~~ selected from the group consisting of maize, wheat, rye, oat, triticale, rice, barley, soybean, peanut, cotton, rapeseed, canola, manihot, pepper, sunflower, tagetes, a solanaceous ~~plants,~~ plant, potato, tobacco, eggplant, tomato, Vicia species, pea, alfalfa, coffee, cacao, tea, Salix species, oil palm, coconut, and perennial grass.

8 (cancelled).
9 (cancelled).
10 (cancelled).

11 (original). An isolated nucleic acid encoding a polypeptide, wherein the nucleic acid comprises a polynucleotide that encodes the polypeptide as defined in SEQ ID NO:13.

12 (original). The nucleic acid of claim 11, wherein the nucleic acid comprises the polynucleotide as defined in SEQ ID NO:8.

13 (cancelled).
14. (cancelled).

15 (currently amended). A seed comprising ~~the isolated~~ a transgene which comprises a

nucleic acid ~~according to any one of claims 11, 12, 13, or 14~~ encoding a full-length polypeptide having PP2A-4 activity, wherein the nucleic acid is selected from the group consisting of:

a) a polynucleotide having a sequence as defined in SEQ ID NO:8;

b) a polynucleotide encoding a polypeptide having a sequence as defined in SEQ ID NO:13;

c) a nucleic acid that hybridizes under stringent conditions to the polynucleotide having the sequence as defined in SEQ ID NO:8;

d) a nucleic acid that hybridizes under stringent conditions to the full-length complement of the polynucleotide having the sequence as defined in SEQ ID NO:8; and

e) a nucleic acid encoding a polypeptide having at least 90% sequence identity to the polypeptide having the sequence as defined in SEQ ID NO:13;

wherein

i) the seed is true breeding for increased tolerance to drought or temperature less than or equal to 0°C; and

ii) the stringent conditions comprise the steps of hybridization in a 6X sodium chloride/sodium citrate (SSC) solution at 65°C and at least one wash in a 0.2X SSC, 0.1% SDS solution at 50°C.

16 (currently amended). An isolated recombinant expression vector comprising a regulatory sequence operatively linked to a ~~nucleic acid of any one of claims 11, 12, 13, or 14,~~ polynucleotide encoding a polypeptide having PP2A-4 activity, wherein the polynucleotide is selected from the group consisting of:

a) a polynucleotide having a sequence as defined in SEQ ID NO:8; and

b) a polynucleotide encoding a polypeptide having a sequence as defined in SEQ ID NO:13;

wherein expression of the polypeptide in a plant cell results in the ~~plant cell's~~ cell having increased tolerance to ~~an environmental stress~~ drought or temperature less than or equal to 0°C, as compared to a wild type variety of the plant cell~~, and wherein the~~

~~environmental stress is selected from one or more of the group consisting of drought and temperature less than or equal to 0ºC~~.

17 (currently amended). A method of producing a transgenic plant comprising a nucleic acid encoding a full-length polypeptide having PP2A-4 activity, comprising the steps of; ~~;~~ ~~a.~~

a) transforming a plant cell with an expression vector ~~of claim 16~~ comprising the nucleic acid selected from the group consisting of:

i) a polynucleotide having a sequence as defined in SEQ ID NO:8;

ii) a polynucleotide encoding a polypeptide having a sequence as defined in SEQ ID NO:13;

iii) a nucleic acid that hybridizes under stringent conditions to the polynucleotide having the sequence as defined in SEQ ID NO:8;

iv) a nucleic acid that hybridizes under stringent conditions to the full-length complement of the polynucleotide having the sequence as defined in SEQ ID NO:8; and

v) a nucleic acid encoding a polypeptide having at least 90% sequence identity to the polypeptide having the sequence as defined in SEQ ID NO:13;

and

b) ~~b.~~ generating from the plant cell ~~a~~ the transgenic plant that expresses the polypeptide;

wherein the ~~polypeptide is defined in SEQ ID NO:13~~ plant has increased tolerance to drought or temperature less than or equal to 0ºC.

18 (original). The method of claim 17, wherein the expression vector comprises the polynucleotide as defined in SEQ ID NO:8.

19 (currently amended). ~~A~~ The method of ~~producing a transgenic plant comprising a nucleic acid encoding a polypeptide, wherein expression of the polypeptide in the plant~~

~~results in the plant's increased tolerance to an environmental stress as compared to a wild type variety of the plant, comprising, a. transforming a plant cell with the expression vector of~~ claim ~~16; and b. generating from the plant cell a transgenic plant that expresses the polypeptide~~ 17; wherein the nucleic acid hybridizes under stringent conditions to ~~at least one sequence from the group consisting of a~~ the nucleic acid having the sequence ~~of~~ as defined in SEQ ID NO:8 ~~and~~ or to the full-length complement of the nucleic acid having the sequence ~~of~~ as defined in SEQ ID NO:8~~; wherein the stringent conditions comprise hybridization in a 6X sodium chloride/sodium citrate (SSC) solution at 65°C and at least one wash in a 0.2.XSSC, 0.1% SDS solution at 50°C; and wherein the environmental stress is selected from one or more of the group consisting of drought and temperature less than or equal to 0°C~~.

20 (currently amended). ~~A~~ The method of ~~producing a transgenic plant comprising a nucleic acid encoding a polypeptide, wherein expression of the polypeptide in the plant results in the plant's increased tolerance to an environmental stress as compared to a wild type variety of the plant, comprising, a. transforming a plant cell with the expression vector of~~ claim ~~16 ; and b. generating from the plant cell a transgenic plant that expresses the polypeptide~~17; wherein the polypeptide has at least 90% sequence identity with the polypeptide having the sequence as defined in SEQ ID NO:13~~, and wherein the environmental stress is selected from one or more of the group consisting of drought and temperature less than or equal to 0°C~~.

21(new). The transgenic plant cell of claim 1, wherein the plant is maize.

22(new). The transgenic plant cell of claim 2, wherein the plant is maize.

23(new). The transgenic plant cell of claim 1, wherein the plant is soybean.

24(new). The transgenic plant cell of claim 2, wherein the plant is soybean.

25(new). The transgenic plant cell of claim 1, wherein the plant is cotton.

26(new). The transgenic plant cell of claim 2, wherein the plant is cotton.

27 (new). The transgenic plant cell of claim 1, wherein the plant is canola or rapeseed.

28 (new). The transgenic plant cell of claim 2, wherein the plant is canola or rapeseed.

29 (new). The seed of claim 15, wherein the transgene comprises the polynucleotide having the sequence as defined in SEQ ID NO:8.

30 (new). The seed of claim 15, wherein the transgene comprises the polynucleotide encoding the polypeptide having the sequence as defined in SEQ ID NO:13.

31 (new). The seed of claim 15, wherein the transgene comprises the nucleic acid that hybridizes under stringent conditions to the polynucleotide having the sequence as defined in SEQ ID NO:8.

32 (new). The seed of claim 15, wherein the transgene comprises the nucleic acid that hybridizes under stringent conditions to the full-length complement of the polynucleotide having the sequence as defined in SEQ ID NO:8.

33 (new). The seed of claim 15, wherein the transgene comprises the nucleic acid encoding the polypeptide having at least 90% sequence identity to the polypeptide having the sequence as defined in SEQ ID NO:13.

34 (new). The method of claim 17, wherein the expression vector comprises the polynucleotide encoding the polypeptide having the sequence as defined in SEQ ID NO:13.

35 (new). An isolated recombinant expression vector comprising a regulatory sequence operatively linked to a nucleic acid encoding a polypeptide having PP2A-4 activity, wherein the nucleic acid is selected from the group consisting of:

a) a nucleic acid that hybridizes under stringent conditions to a polynucleotide having a sequence as defined in SEQ ID NO:8;

b) a nucleic acid that hybridizes under stringent conditions to a full-length complement of the polynucleotide having the sequence as defined in SEQ ID NO:8; and

c) a nucleic acid encoding a polypeptide having at least 90% sequence identity to a polypeptide having a sequence as defined in SEQ ID NO:13;

wherein:

i) the regulatory sequence is not an *Arabidopsis thaliana* PP2A-4 promoter; and

ii) expression of the polypeptide in a plant cell results in the cell having increased tolerance to drought or temperature less than or equal to 0°C, as compared to a wild type variety of the plant cell.